

VARIABLE SPEED CLUTCH

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Abstract

A variable speed slip clutch is provided. The clutch has an output shaft, a first and second input hub, and output hub, a wrap spring and a control hub. In one embodiment, the clutch includes a source coupler coupled to a first and a second input drive. The output shaft is configured to rotate. The first input hub is coupled to the first input drive and configured to rotate about the output shaft in a first direction. The second input hub is coupled to the second input drive and configured to rotate about the output shaft in a second direction opposite the first direction. The output hub fixed to the output shaft and configured to rotate therewith. The wrap spring has a first and a second end. The first end of the wrap spring is fixed to the output hub such that the first end of the wrap spring rotates with rotation of the output hub. The control hub is coupled to the second end of the wrap spring. In one embodiment a control motor is provided and coupled to the control hub. The motor is configured to alternatively rotate the control hub in the first and second directions. Rotation of the control hub in the first direction causes the wrap spring to wrap open thereby engaging the second input hub. Rotation of the control hub in the second direction causes the wrap spring to wrap down thereby engaging the first input hub.